

REMARKS

The Office Action dated June 20, 2005 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1, 3 and 5 are amended to particularly point out and distinctly claim the subject matter of the invention. Support the amendment is found at least on page 13 lines 1-3 and paragraph [0058] of specification. No new matter is added. Claims 1-20 are respectfully submitted for consideration.

The Office Action rejected claims 1-20 under 35 U.S.C. §103(a) as being obvious over US Patent No 6,108,558 to Vanderspoo (Vanderspoo), in view of US Publication No. US 2003/0125046 to Riley (Riley). The Office Action took the position that Vanderspoo disclosed all of the features of the pending claims except the feature of analyzing the measurements to identify suspicious measurements. The Office Action asserted that Riley disclosed this feature. Applicants submit that the cited references taken individually or in combination, fail to disclose or suggest all of the features recited in any of the pending claims.

Claim 1, from which claim 2 depends, recites a method of providing information regarding a location of a mobile user of a communication system. The method includes performing measurements for provision of input data for a location calculation function, and analyzing an effect of ignoring a measurement, to identify suspicious measurements. The method further includes deciding selected measurements for use by the location

calculation function, and calculating a location estimate for a mobile user based on the selected measurements.

Claim 3, from which claim 4 depends, recites a communication system. The communication system includes a measuring device configured to perform measurements for provision of input data for a location calculation function. The communication system further includes an analyzer configured to analyze an effect of ignoring a measurement to identify suspicious measurements, and a deciding unit configured to decide selected measurements for use by the location calculation function. Still further the communication system includes a calculating device configured to calculate a location estimate for a mobile user based on the selected measurements.

Claim 5, from which claim 6 depends, recites a communication system. The communication system includes measuring means for performing measurements for provision of input data for a location calculation function. The communication system further includes analyzing means for analyzing an effect of ignoring a measurement, to identify suspicious measurements, a deciding means for deciding selected measurements for use by the location calculation function, and a calculating means for calculating a location estimate for a mobile user based on the selected measurements.

Claim 7, from which claims 8-11 depend, recites a location system. The location system includes a controller configured to control at least one base station, a location service node configured to provide a client application with a measurement regarding geographic location information of at least one mobile station. The location system

further includes an interface configured to receive the measurement regarding the geographic location information of the at least one mobile station and to transmit the measurement regarding the geographic location information to a location device, and the location device configured to determine a location estimate based upon the measurement regarding the geographic location. Further, the location system includes a suspicious measurement identifier configured to identify suspicious measurements by analyzing a discrepancy between the measurement and the location estimate.

Claim 12, from which claims 13-16 depend, recites a method for providing location information to a user in a communication system. The method includes controlling at least one base station, and providing a client application with a measurement regarding geographic location information of at least one mobile station. The method further includes receiving the measurement of the geographic location information of the at least one mobile station, and transmitting the measurement of the geographic location information to a location means for providing location services. Further, the method includes determining a location estimate based upon the measurement regarding the geographic location, and identifying suspicious measurements by analyzing a discrepancy between the measurement and the location estimate.

Claim 17, from which claims 18-20 depend, recites a location system. The location system includes controlling means for controlling at least one base station, and a first providing means for providing a client application with a measurement regarding

geographic location information of at least one mobile station. The location system further includes receiving means for receiving the measurement regarding the geographic location information of the at least one mobile station, and transmitting means for transmitting the measurement regarding the geographic location information to a location means for location services. The method further includes determining means for determining a location estimate based upon the measurement regarding the geographic location, and identifying means for identifying suspicious measurements by analyzing a discrepancy between the measurement and the location estimate.

The present invention relates to detecting suspicious (or erroneous) measurements which are out of line with the other location measurements in order to reduce the overall inaccuracy of a location calculation. Accordingly, outlying measurements which are inconsistent with more consistent measurements can be eliminated entirely from the calculation. See at least paragraphs [0044] – [0047] of the present application.

Vanderspool is directed to a method for calculating a location of a remote unit utilizing observed time difference (OTD) and real time difference (RTD) measurements. Observed differences in received signal times are reported to a Mobile Location Center (MLC). In addition, a Real-Time difference (RTD) between base stations is computed a second time and reported to the MLC. A corrected Time Difference of Arrival (TDOA) is computed based on the OTD measurements and the estimated RTD measurements. The Office Action admits that Vanderspool has deficiencies as prior art against the present pending claims and relies on Riley to cure the admitted deficiencies.

Riley is directed to use of mobile stations for determination of base station location parameters in a wireless mobile communication system. Figures 7-9 of Riley illustrate a flow diagram showing how the position and time offset of a base station is determined from a number of mobile station positions, mobile station offsets and pseudoranges between the base station and the mobile station positions. Riley as discussed above, is relied upon in the Office Action to cure the admitted deficiencies of Vanderspool, such as analyzing the measurements to identify suspicious measurements; deciding selected measurements for use by the location calculation function and calculating a location estimate for a mobile user based on the selected measurements.

Applicants submit that the cited references taken individually or in combination fail to disclose or suggest at least the feature of analyzing the effect of ignoring a measurement to identify suspicious measurements, as recited in claim 1 and similarly recited in claims 3, 5, 7, 12 and 17. As stated above, the Office Action relied on Riley to disclose this feature.

However, in contrast, Riley does not attempt to identify outlying measurements or the effect the elimination of a measurement would have on an overall calculation. Riley merely prioritizes the use of particular measurements according to an estimated error level. Thus, the method of Riley does not consider the values of measurements themselves when considering whether to give weight to those measurements, but rather considers only an estimated error associated with particular types of methods. Thus,

Riley neither discloses or suggests analyzing the affect of ignoring a measurement nor analyzing a discrepancy between the measurement and the location estimate.

Further, the Office Action alleges that Riley discloses analyzing a discrepancy between selected measurements and the location estimate, as recited in claim 1 and similarly recited in claims 3, 5, 7, 12 and 17. This feature is allegedly disclosed in Figure 9 and paragraph [0083] of Riley. However, Applicants submit that Riley merely relates to steps which are formed in order to determine a sector in which the mobile station is located. Hence, Riley does not mention that an outlying measurement in a group of selected measurements is detected, for example by searching for a discrepancy between particular measurements and the location estimate (the location estimate being based on a combination of selected measurements). Therefore, Riley does not consider the impact which a particular erroneous measurements may have on an overall location estimate determined on the basis of a number of selected measurements.

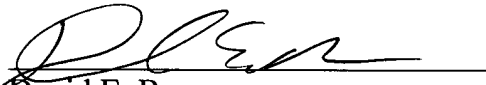
Applicants submit that because claims 2, 4, 6, 8-11, 13-16 and 18-20 depend from claims 1, 3, 5, 7, 12 and 17 respectively, these claims are allowable at least for the same reasons set forth for claims 1, 3, 5, 7, 12 and 17.

Applicants further submit that the cited references, taken individually or in combination, fails to disclose or suggest all of the features recited in any of the pending claims. Accordingly, withdrawal of the rejection of claims 1-20 under 35 U.S.C. §103(a) of these claims is respectfully requested.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,


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